

Interplanetary magnetic field power spectrum variations: A VHO enabled study

A. Szabo, A. Koval, J. Merka, T. Narock

The newly reprocessed high time resolution (11/22 vectors/sec) Wind mission interplanetary magnetic field data and the solar wind key parameter search capability of the Virtual Heliospheric Observatory (VHO) affords an opportunity to study magnetic field power spectral density variations as a function of solar wind conditions. In the reprocessed Wind Magnetic Field Investigation (MFI) data, the spin tone and its harmonics are greatly reduced that allows the meaningful fitting of power spectra to the ~ 2 Hz limit above which digitization noise becomes apparent. The power spectral density is computed and the spectral index is fitted for the MHD and ion inertial regime separately along with the break point between the two for various solar wind conditions. The time periods of fixed solar wind conditions are obtained from VHO searches that greatly simplify the process. The functional dependence of the ion inertial spectral index and break point on solar wind plasma and magnetic field conditions will be discussed.